Remote access to the inverter via web user interface

Application instructions

for Operator

1 Application

We have provided you with an intuitive web-based user interface for remote configuration of a KACO inverter which is connected to a network.

Figure 1.   Web-based user interface - data view

Enter the unit's IP address (e.g. http://192.168.100.13) into the address bar of a common internet browser to gain access to the user interface.

The web user interface is split into three sections and separated by a selection bar. The area above the selection bar is used to display the unit and network data. The graphical interface of the inverter is simulated below the selection bar on the left hand side. The current performance and operating data are displayed on the right hand side. There is also the option to export data in csv format.

Figure 2.   Selection bar with remote config deactivated

System data (e.g. yield data, charts, inverter status) can be displayed in the selection bar using links to different views (daily/monthly/annual/general view).

It is possible to move back and forward in time by clicking the arrow and double arrow buttons. The calendar button allows you to enter a specific date.

*We recommend using Internet Explorer, Firefox, Google Chrome or Mobile Safari for optimum display.

It is <u>only</u> possible to configure the inverter remotely if this function has been activated locally via the inverter's webserver menu on the unit.
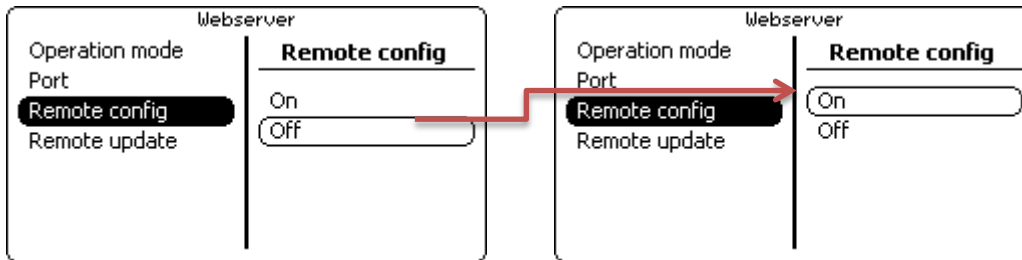

Figure 3.   Access to remote config via the webserver menu interface on the inverter
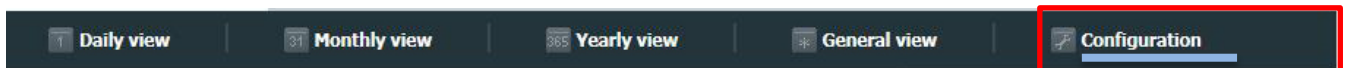

Figure 4.   Selection bar with remote config activated

Following activation, the <u>link</u> "Configuration" is available in the selection bar on the web user interface.

If you are planning to update the unit remotely, this function must also be activated in the inverter's webserver menu. This is only possible if the function has been activated locally via the inverter's webserver menu on the unit.
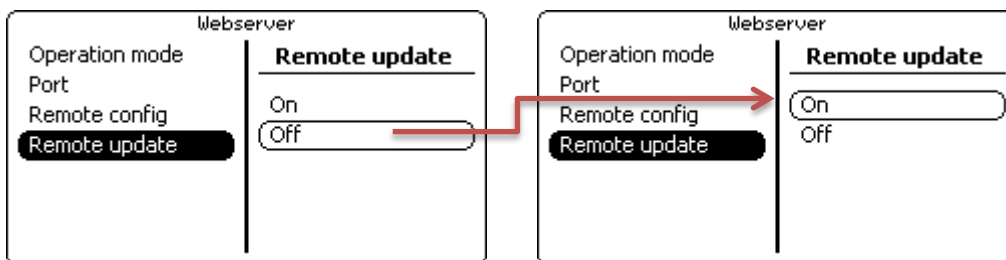

Figure 5.   Remote update activation via the webserver menu interface on the inverter

2   Safety

	CAUTION

	Setting parameters incorrectly can cause damage
	
	Changes to software parameters can seriously impair the functionality of the unit.
	
	> The activities described in the document may only be carried out by specially trained personnel with the following qualifications:
	  - Knowledge about how an inverter functions and operates
	  - Training in the handling of hazards and risks during the installation and operation of electrical units and systems
	  - Education concerning the installation and start-up of electrical units and systems
	  - Knowledge of applicable standards and directives
	> Knowledge and adherence to this document with all safety notices.

	CAUTION
	Unauthorised access can lead to damage If unauthorised persons gain access to the system, unit settings could be manipulated which could seriously impair the functionality and safety of the unit and lead to damage. > The following functions must only be used on the local network or via a secure VPN connection.

	NOTE
(i)	The update can take several minutes. The "Operating" LED flashes during the update process. The inverter may restart several times. The following message appears if the DC power supply is too low: "DC power supply too low! Perform update anyway?". In this case, select "No" and perform the update with a stable voltage supply.

	NOTE
(i)	The unit-specific and serial number dependent password is required to set "critical" parameters. The unit-specific password can be obtained from KACO customer service, if necessary. Login data must be stored in a location which is not accessible to third parties.

Notification window prior to changing "critical" parameters	Operation and control

Please enter device password

To modify this property, it is necessary to enter the device password

[ ]

Confirm | ✓ Enter unit-specific password into *framed free-text section*.
✓ Acknowledge entry by clicking the *"Confirm"* button. |

Figure 6.   Enter unit-specific password

	ACCESS DATA *)
(i)	The two accounts "user" (restricted configuration options) and "installer" (advanced configuration options) are available for remote access to the unit: User name: user Password: Da_3u1B! (initial setting) *) **Important**: Following initial start-up, you must change the access data via one of the menu items "Change user password" or "Change installer password" in the *Main menu* under *Functions*.

	NOTE
(i)	The functions described in the following chapter are only available on the inverters listed and with the existing software package (see chapter 5.1). Configurations and software updates may only be carried out if there is a suitable DC power supply.

	DEVICE-SPECIFIC NOTE
(i)	Modified parameters in the device series blueplanet 15.0-20.0TL3 from Software Version V4.x are only adopted when the device is restarted, but at the latest on the next day.

3 Navigation

The following table will support you during the remote config process using the web user interface and shows you the input screens behind the "Configuration" link.
Input screens that are marked on the side(user) are only available to installers, service partners and technicians and can not be accessed by system operators.

Note: In the case of inactive entry or use, the interface is made available for 10 minutes for configuration purposes. Once this time has elapsed, you must log in again.
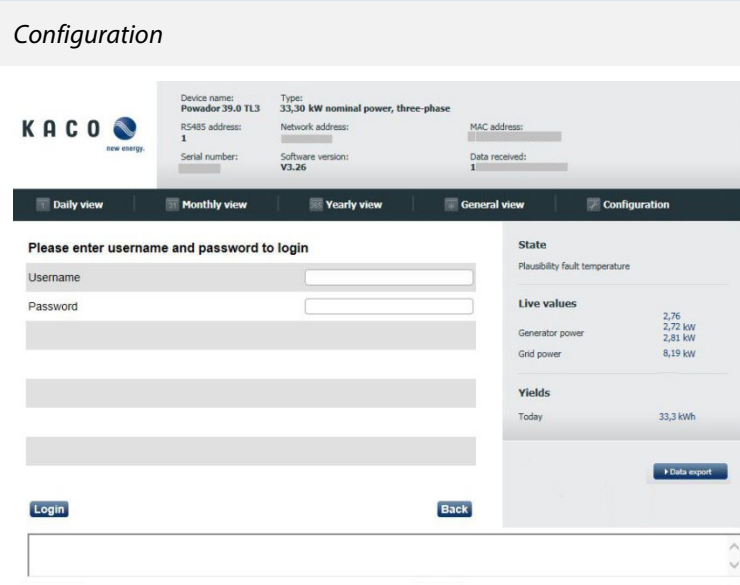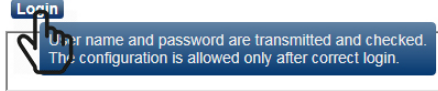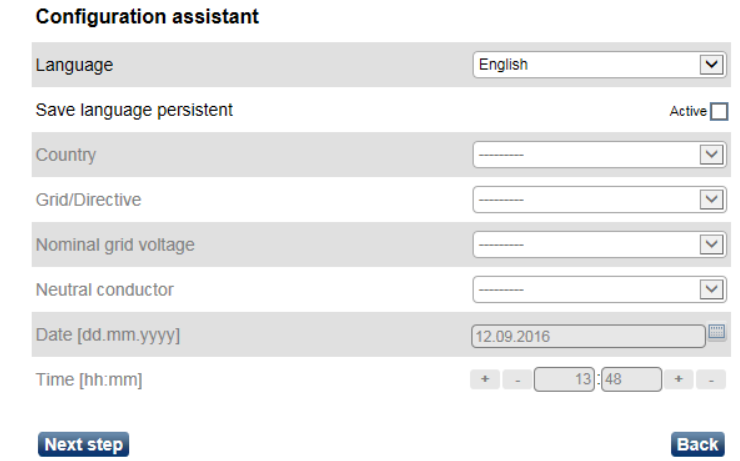
User	Inverter input screen	Operation and navigation
	Configuration	
	Figure 7. *Configuration login screen*	✓ Access data: Enter user name and password into the *framed free-text sections*. ✓ Confirm the entry with the *"Login"* button. ✓ Clicking the *"Back"* button will take you back to the previous input screen at any time. **Note:** If you move your *cursor* over a button, further information regarding entry or relevant warning messages will be displayed.
	Figure 8. *Configuration assistant*	✓ Select the display language via the *dropdown menu* "∨" field. ✓ The language can be set permanently via the *active checkbox* on the inverter. **Note:** If the checkbox is disabled, the language of the web user interface will only be set for the current session. ✓ Confirm both actions by clicking the *"Next step"* button. ✓ Select the user country and network-specific country requirements step-by-step via the dropdown menu "∨" field and acknowledge them by clicking the *"Next step"* button. ✓ Set the time and date for the user country. **Note:** No entry is possible or permitted in the fields with a grey background.

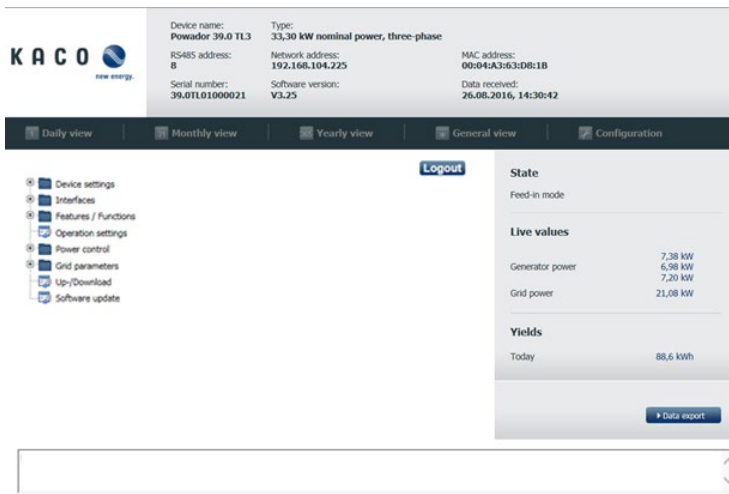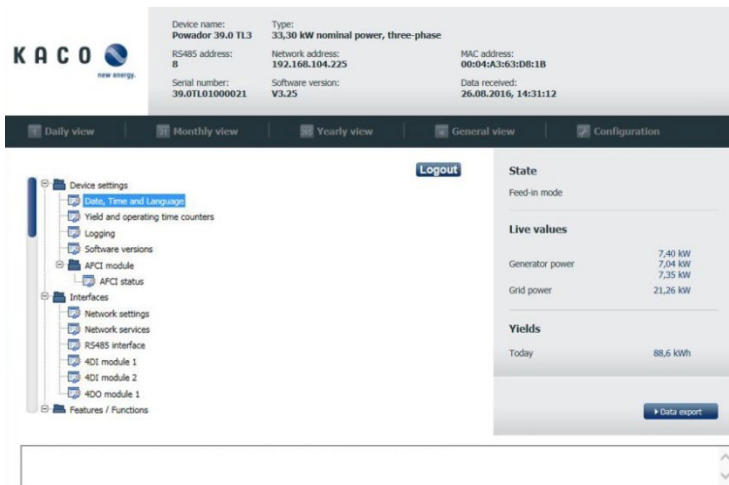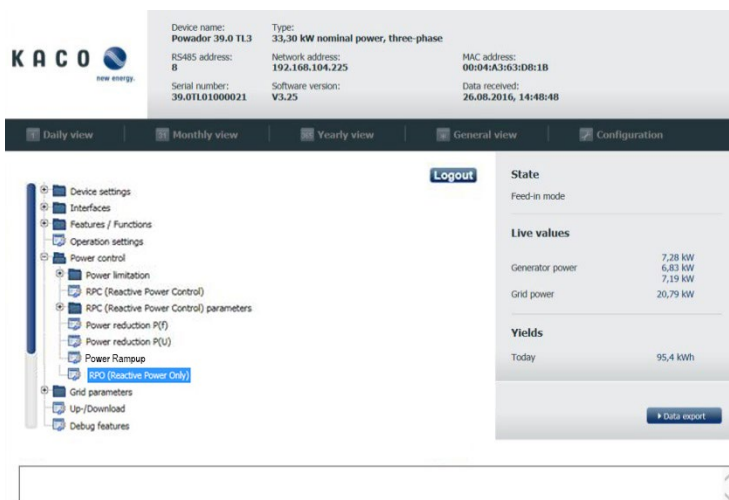| User	Inverter input screen	Operation and navigation
	Figure 9. Inverter settings tree structure	**Note:** A specific parameter or function tree structure for the inverter is adopted according to your login details. ✓ By clicking the "**+**" box, the folder opens up to display other submenu items. ✓ Clicking the "Logout" button will cancel the current operation and you will be taken back to the data view.
	Figure 10. Menu items	✓ By clicking a menu item you will be taken to the associated input screen. ✓ You can scroll to all of the open main entries using the slide bar at the side.
	Figure 11. Menu entries – RPO unit series	**Note:** The RPO unit series includes special software entries in the power control. ✓ By clicking a menu item you will be taken to the associated input screen. ✓ You can scroll to all of the open main entries using the slide bar at the side.

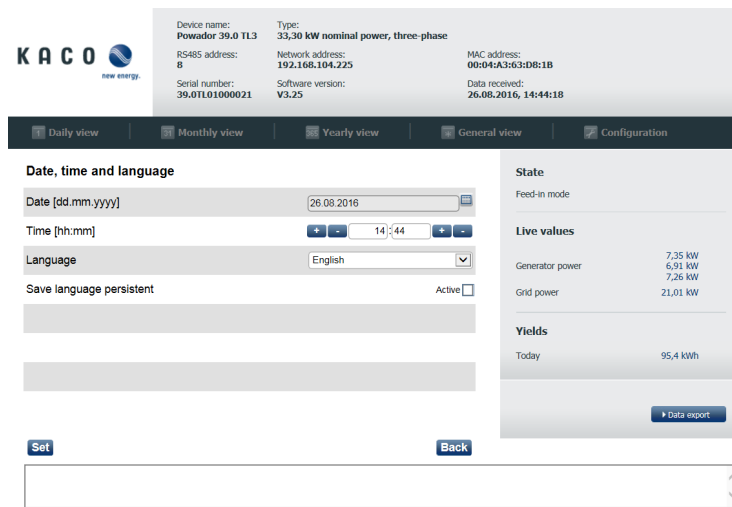| User	Inverter input screen	Operation and navigation
	Submenu items - unit settings	

Figure 12. Set date, time, language

- ✓ Select the date using the "calendar" button.
- ✓ Enter the time into the *framed free-text section* or set the time using the "+/-" buttons.
- ✓ Set the language via the dropdown menu "∨" field.

Note: The language can be set persistently via the *active checkbox* on the inverter.

- ✓ Set the entries by clicking the *"Set"* button.

Note: The plausibility of the information is checked before it is saved.
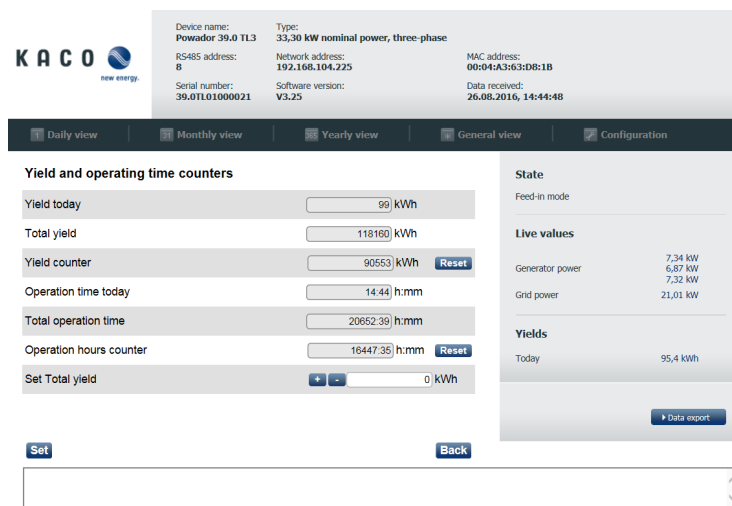
Figure 13. View and edit the yield and operating counters

Note: If necessary, the unit-specific password is requested via an additional menu dialogue.

- ✓ Values for the yield and operation counters can be set to 0 using the "*Reset*" button.
- ✓ You can enter the total yield you have achieved thus far into the free-text field itself or set it using the "+/-" buttons.
- ✓ Set the entries by clicking the *"Set"* button.

Figure 14. Configure the logging interval

- ✓ The logging interval for yield and operating data can be changed via the dropdown menu "∨" field.
- ✓ When the log data backup checkbox is selected, the daily log data from the previous day is saved onto a USB stick at midnight.
- ✓ Set the entries by clicking the *"Set"* button.

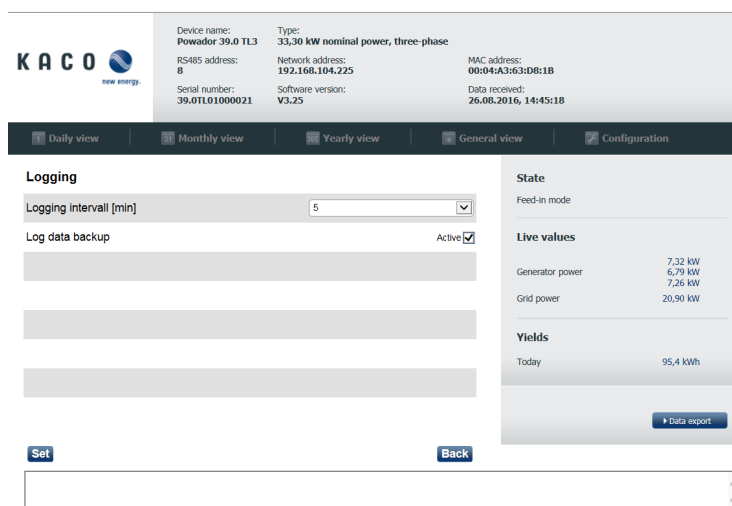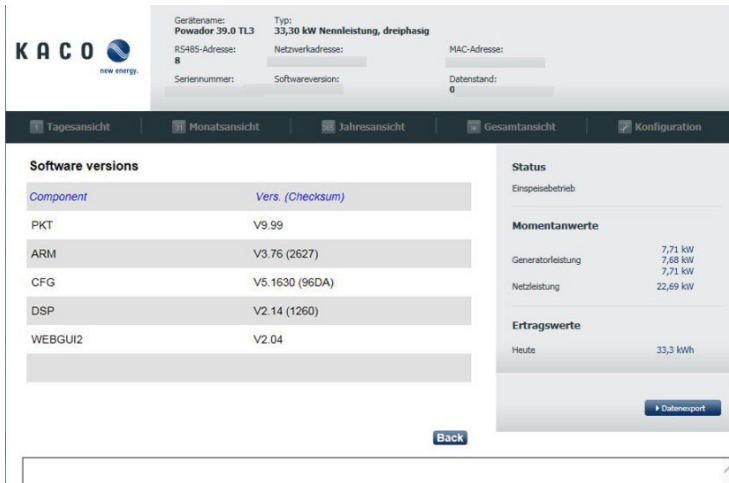| User	Inverter input screen	Operation and navigation
	Figure 15. View software versions of all components	**Note:** Following every software update, check that the version number of the installed software component corresponds to the software package. ✓ The current software versions installed for each component can be viewed via the submenu item "*Software versions*".
	Submenu item – AFCI module *Figure 16. Viewing the AFCI status*	**Note:** The following status can be seen in the "AFCI status" screen when the residual current circuit breaker is installed: ✓ Number of monitored MPP trackers ✓ Parameter version ✓ Self-test status ✓ Activation status ✓ Clicking the "*Back*" button will take you back to the previous input screen at any time.
	Submenu items - interfaces *Figure 17. Configure the network settings*	✓ Automatic IP address assignment can be activated by clicking the "*Active*" button. **Note:** The following fields will be hidden when the DHCP is activated. ✓ IP address ✓ Subnet mask ✓ Gateway ✓ DNS server **Note:** *Warning messages*) are* highlighted in the comments box below. ✓ Set the entries by clicking the "*Set*" button. **)Changing these properties can result in the connection being terminated.*
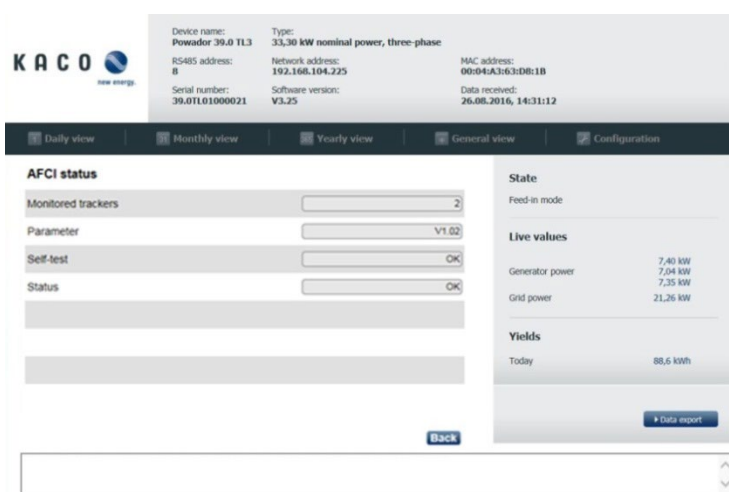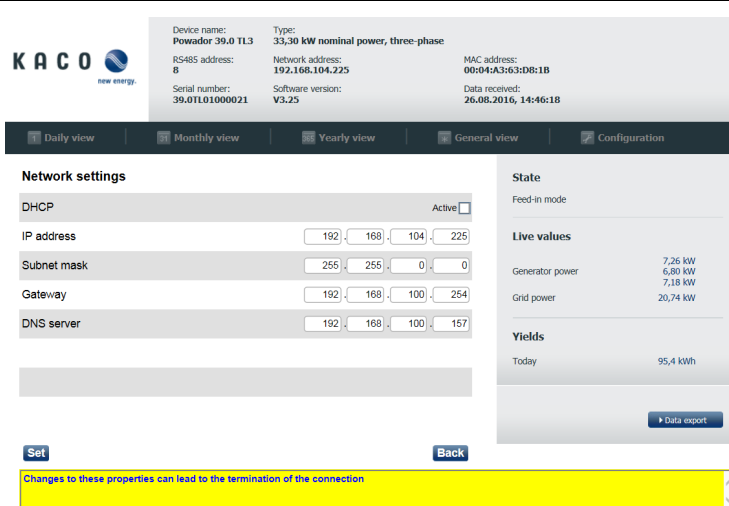
User	Inverter input screen	Operation and navigation

Figure 18. Configure network services

Figure 19. Activating read access in the inverter's HMI interface

*Figure 20. **Separate** Activation of Write Access in the HMI interface of the inverter*

Caution: If you deactivate the webserver, the connection to the unit will be interrupted. In this case, it will only be possible to activate the webserver via the user interface on the unit's display. You obtain r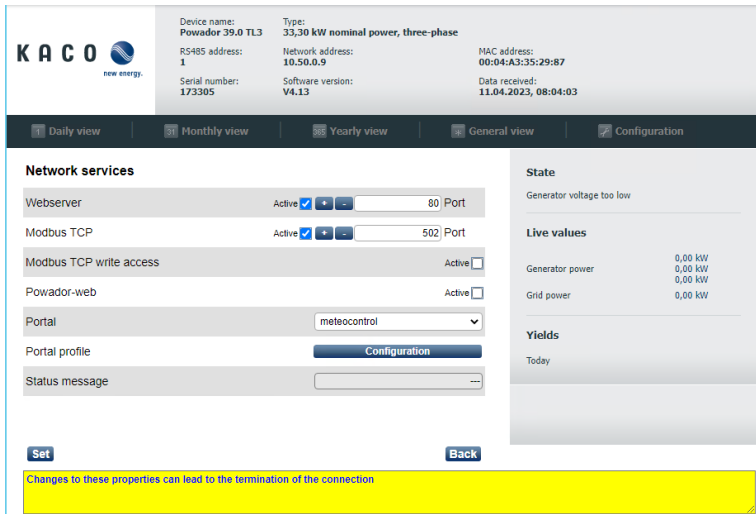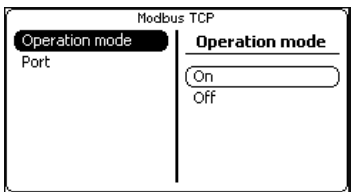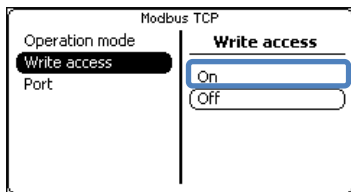ead access to your inverter by activating the operating mode via "On". If you also want to **write** data to the unit, write access must also be activated via "On".

- ✓ The features "Webserver", "Modbus TCP", "Modbus TCP write access" and "Powador-web" can be activated by ticking the boxes.
- ✓ Either enter the port for the webserver or use the "+/-" buttons to set it.
- ✓ Either enter the port for the Modbus TCP or use the "+/-" buttons to set it.
- ✓ Select the portal for system monitoring.
- ✓ Carry out the configuration of the portal profile using the "Configuration" button (see Figure 20).
- ✓ The status message shows the portal connection status.

Note: Warning messages are highlighted in the comments box below.

- ✓ Set the entries by clicking the *"Set"* button.
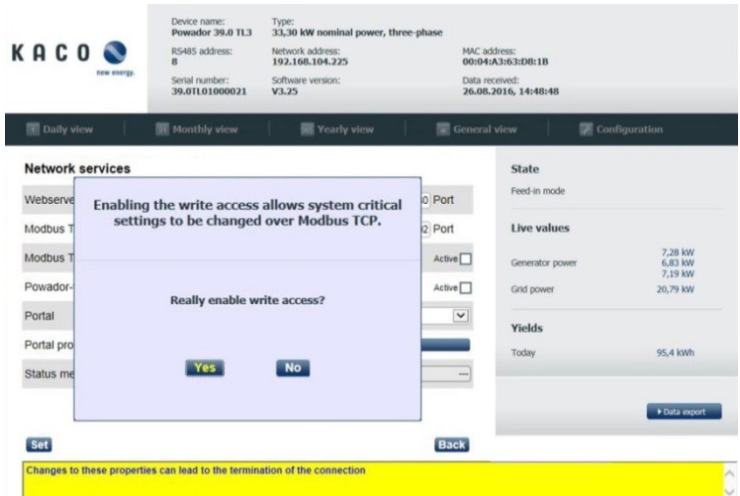

Figure 21. Confirmation prompt when activating the Modbus TCP write access

Note An additional confirmation is required to activate the write access on Modbus TCP.

- ✓ Permit Modbus TCP write access by clicking the "Yes" button.

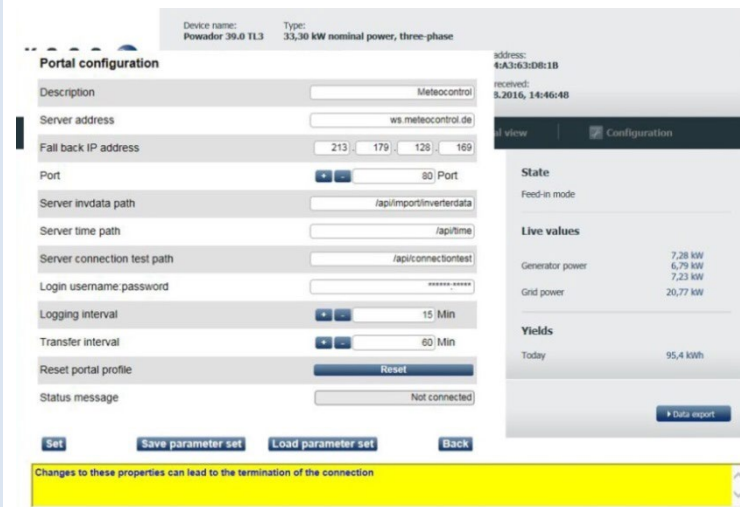| User	Inverter input screen	Operation and navigation

The portal configuration submenu item

Figure 22.   Configuring the portal

Note: Standard portal profiles have already been pre-defined. User-defined portal profiles require the following settings.

- ✓ Enter the user name for portal configuration.
- ✓ Enter the server address.
- ✓ Enter the fall back IP address (if the server jumps to an incorrect server address)
- ✓ Enter the port number or set it using the "+/-" buttons.
- ✓ Enter the interface paths for inverter data, time, connection test.
- ✓ Enter the password for the login username.
- ✓ Enter the time for the access and transfer interval or set it using the "+/-" buttons.

Note: You can reset the configuration to the default settings by clicking the "Reset" button.

- ✓ Export the portal settings to a file by clicking the "Save parameter set" button.

Note: Saved profiles can be loaded by clicking "Load parameter set".

- ✓ Set the entries by clicking the "Set" button.

Figure 23.   Configuring the RS485 interface
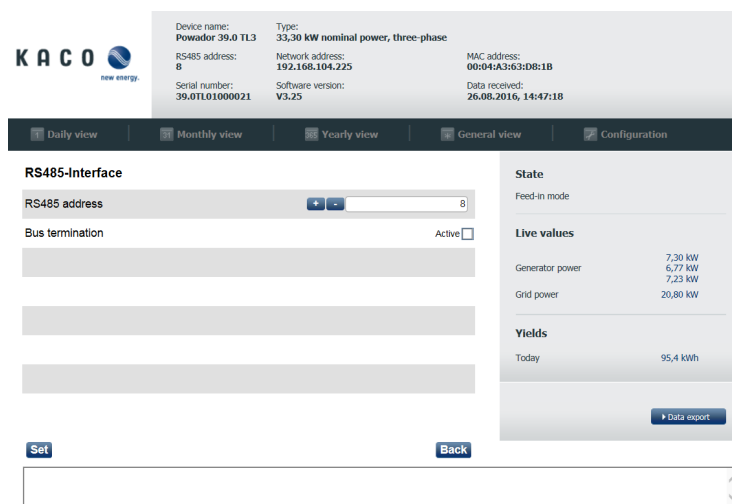
Note: By allocating an RS485 address, you address the inverter in the unit compound.

- ✓ Enter the RS485 address or set it using the "+/-" buttons.

Note: Bus termination is only available on units that allow software-based configuration.

- ✓ The first and last unit in a group of equipment are specified via bus termination.

- ✓ Set the entries by clicking the "Set" button.

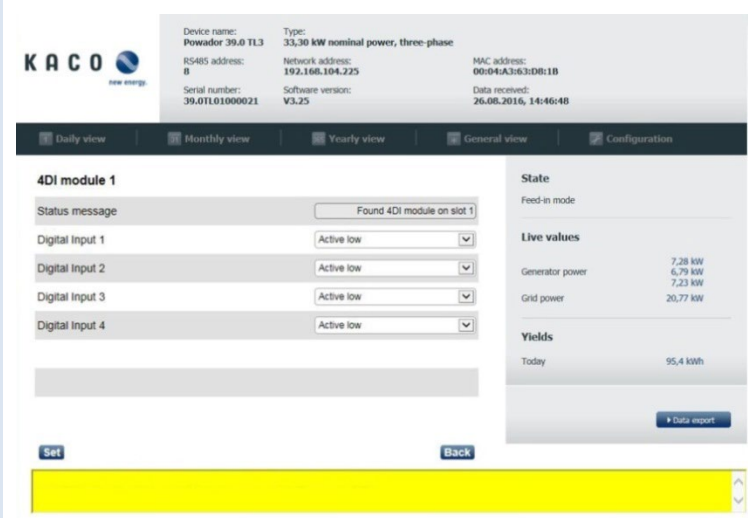| User	Inverter input screen	Operation and navigation
	Figure 24. Configuring 1 or 2 extension modules for digital inputs	**Note:** Extension module(s) for digital inputs can be obtained from KACO service. (e.g. for connecting a ripple control receiver) ✓ The module status can be viewed via the status message. ✓ If the module is available: - For each input channel, select the activation level "Active low" for 0-1V or "Active high" for 5-40V. ✓ Set the selection by clicking the *"Set"* button.
	Submenu items - characteristics/functions	
	Figure 25. Activate Password protection	**Note:** The password protection functions protect the access to following Parameters. ✓ The Password protection can be activated by ticking the boxes. ✓ Set the selection by clicking the *"Set"* button.
	Figure 26. Configure the priwatt function	**Note:** The priwatt function is not available for RPO inverters ✓ Set the priwatt function activation mode via the dropdown menu "∨" field. ✓ Enter the monitoring time and activation threshold or set them using the "+/-" buttons. ✓ Set the operating mode via the dropdown menu "∨" field. **Note:** The operation time can only be set in the time-dependent operating mode. Otherwise, the input field is hidden. ✓ Set the entries by clicking the *"Set"* button.
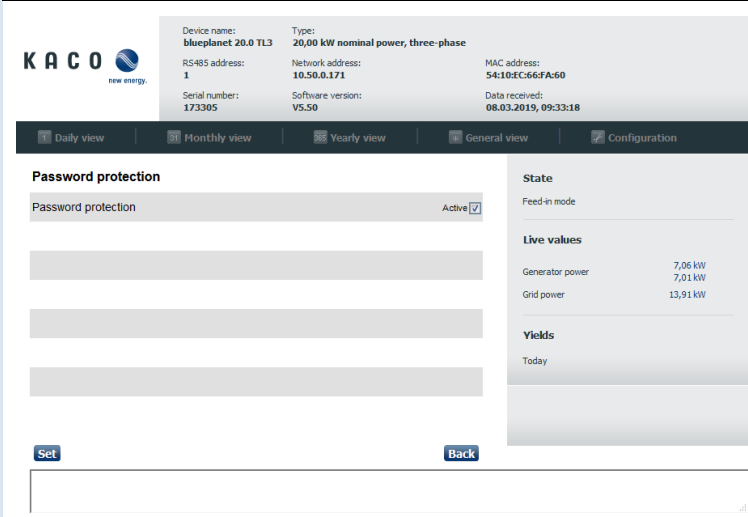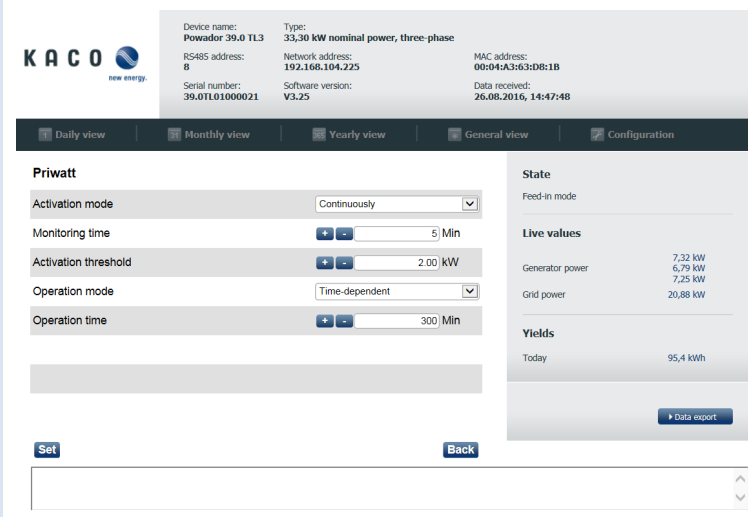
User	Inverter input screen	Operation and navigation
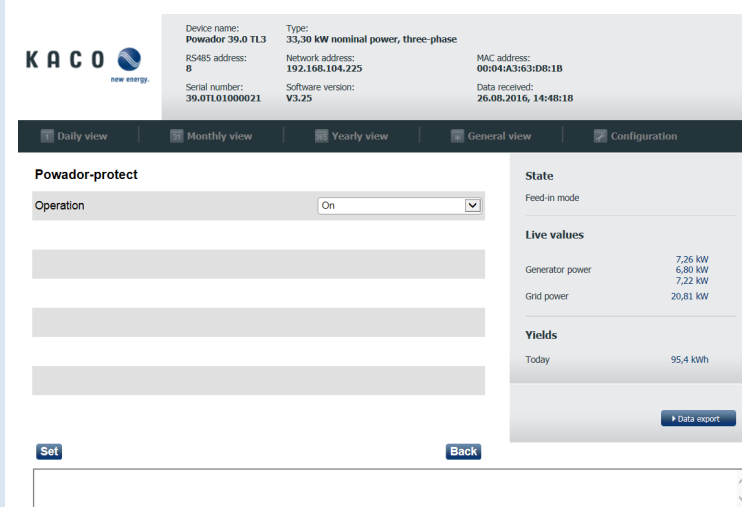
Figure 27.   Configure Powador-protect mode

Note: The behaviour of the inverter when an optional "Powador-protect" is connected can be configured in this screen.

- ✓ Set the Powador-protect operation mode via the dropdown menu "∨" field.
- ✓ Set the selection by clicking the *"Set"* button.
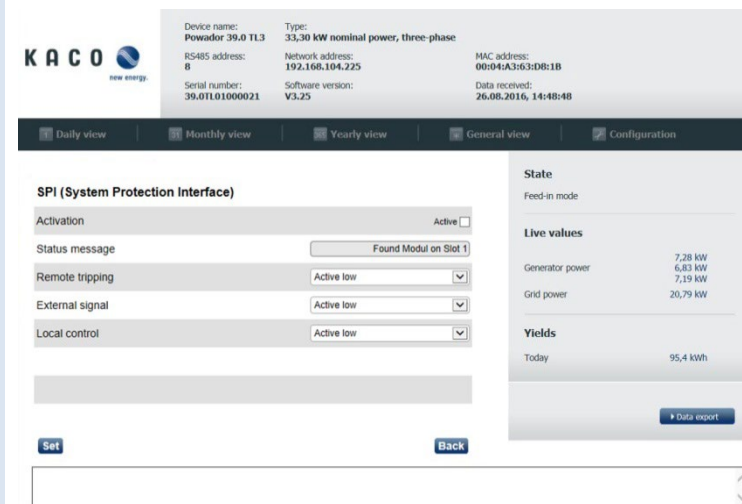
Figure 28.   Configuring the SPI function

Note: This function is only available if supported by the inverter family.

- ✓ The function can be activated by ticking the boxes.
- ✓ The available module is reported by way of a status message.
- ✓ Set the logic level "Active low" for 0-1V or "Active high" for 5-40V via the dropdown menu "∨" field.
- ✓ Set the selection by clicking the *"Set"* button.

Figure 29.   Configuring the S0 output

Note: The screen may differ depending on the hardware. The S0 output can be configured if the hardware supports this.

Configure the S0 function

- ✓ Activate/deactivate the S0 function
- ✓ Set the pulse rate.
- ✓ Set the selection by clicking the *"Set"* button.

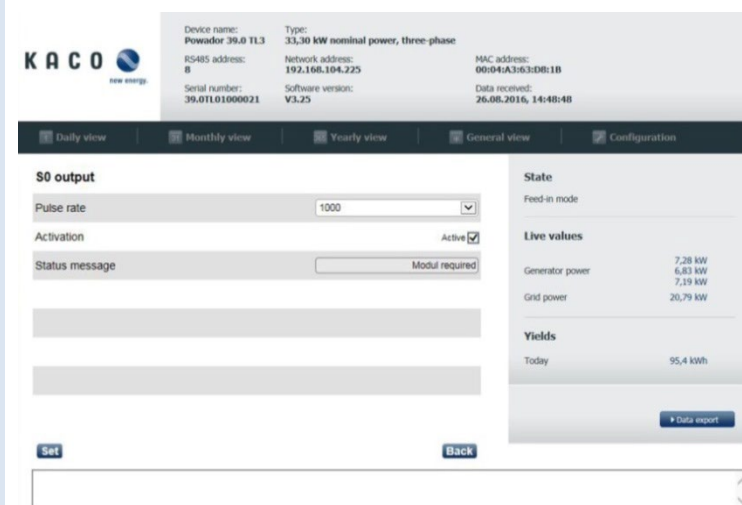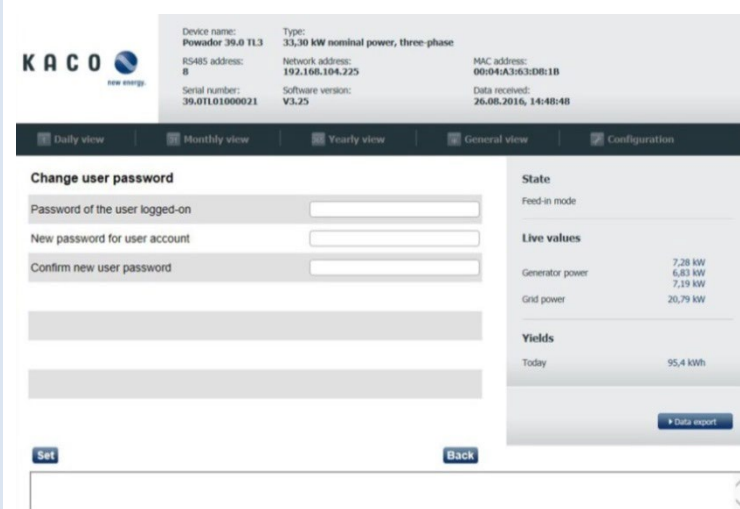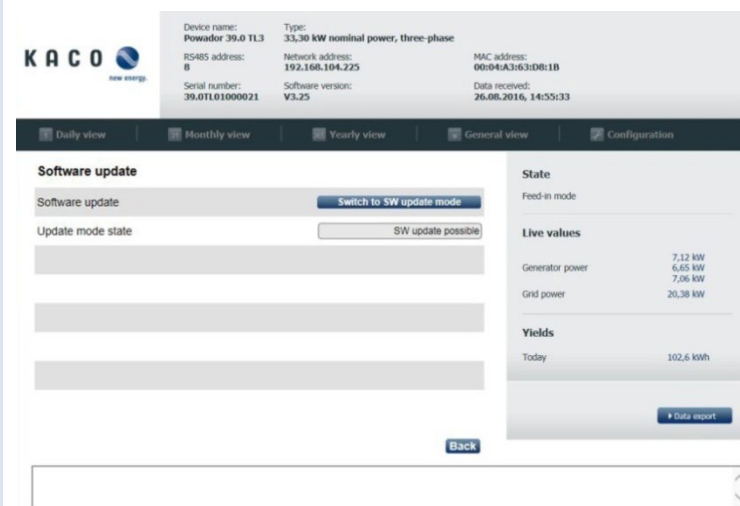| User	Inverter input screen	Operation and navigation
Installers & service partners	Figure 30. Changing the user password	**Note:** The user password protects you against unauthorised access to the inverters that are connected to the network. ✓ Enter the current password of the user who is currently logged in. ✓ Enter a new user password. ✓ Confirm the new user password by re-entering it. ✓ Set the entries by clicking the *"Set"* button.
	Software update	
	Figure 31. Performing the software update	**Note:** Please note the info to Software-Update package below V5.50 via Web-GUI* ✓ By activating "Switch to SW update mode", the changeover to the inverter's own update menu will take place. ✓ The update mode state message indicates whether a software update is currently possible. **Note:** After updating the device, delete the browser cache and the Java cache and restart your web browser. **Note:** Refer to the update steps detailed in chapter 4.

* In the Software update for packages < V5.50 via WEBGUI, the update with the Google Chrome browser from versions > V64 can be reported to the following error "Another user is logged to the system. Only one session is supported by the system.", in this case, another browser, such as Firefox, Microsoft Internet Explorer or the Microsoft Edge, should be used.

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4 Carrying out a single update

	NOTE
ℹ	Ensure that the inverter has an active DC power supply when remote access is active. It is only possible to update all of the inverter's components to the most current software version in this operating state.
	Furthermore, any USB storage media which may be connected to the unit must be removed.

Preparing for the software update

1. Download the software update file (.KUF) from the KACO web site and store it on your hard disk.

» Perform software update.

	NOTE
ℹ	The update can take several minutes. The "Operating" LED flashes during the update process. The inverter may restart several times.
	The following message appears if the DC power supply is too low: "DC power supply too low! Perform update anyway?".

	ACCESS DATA
ℹ	For the remote update, use the user-dependent access data:
	User name: user
	Password: 000000 (default setting)
	User name: admin
ℹ	Bootloader below V3.28: 4-digit, serial number dependent password* Bootloader V3.28 and higher: 8-digit, serial number dependent password*
	*) This password is required to reset the password for the user account "user" to 000000 (default).

Application instructions - Remote access to the inverter
via web user interface

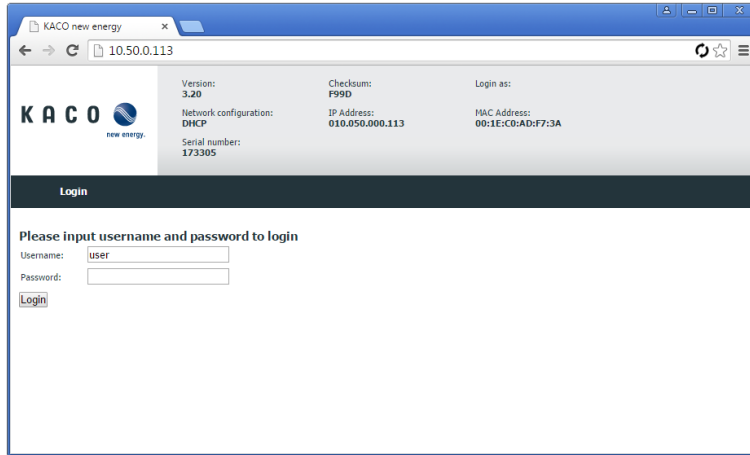| Inverter input screen	Operation and navigation

Figure 32.   Authorisation dialogue

✓ The access data stated above: Enter user name and password into the *framed free-text sections.*
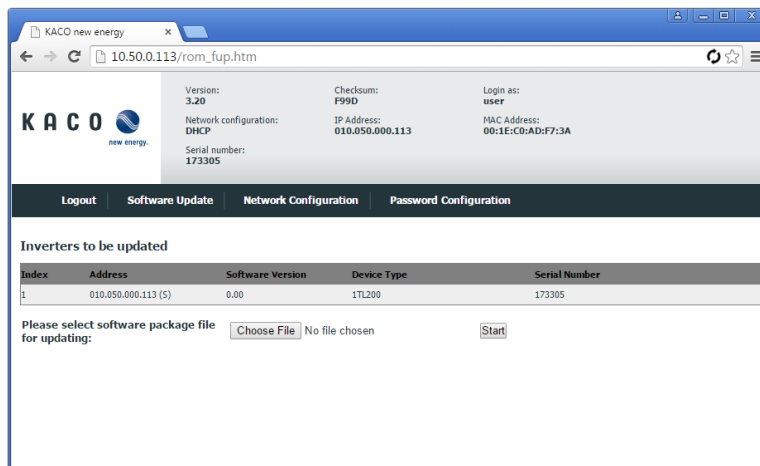✓ Confirm the entry with the *"Login"* button.

Figure 33.   Select the software package

✓ Open the folder containing the saved software-update file by clicking the *"Choose file"* button.
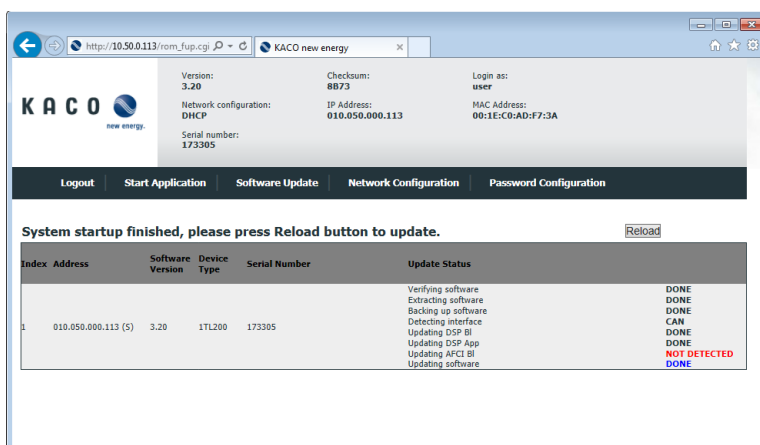✓ Run the update by clicking the *"Start"* button.

Figure 34.   Status display following successful software update

✓ Check the status display of the completed software update for each software component.

Note: Once the software update is complete, you can switch to the main page (inverter file view) by clicking the "Reload" button. This switch takes place automatically after a while.

Note: The error (red) displayed in the figure on the left is the rule for all units without an AFCI module.

Check the software version

1. Once the update has been completed successfully, check the current software version of all installed components.

» The inverter displays the version of the software that is currently loaded in the upper area of user interface.

5 More information

	NOTE
(i)	Information concerning the specific functionality of menu entries can be found in the operation manuals on our homepage.

5.1 Available functions

Inverter - series	Available functions according to software package		
	WEBGUI2 Stage 2 Year 2019 - / -2018		Single update via web-interface
Powador 6.0 - 20.0 TL3 blueplanet 15.0 - 20.0 TL3	V5.50	V4.00	-
Powador 30.0 -72.0 TL3	V5.54	V4.00	V3.25
blueplanet 50.0 TL3 WM	V5.54	V4.00	V3.34
blueplanet 3.0 -10.0 TL3	V5.50	V4.00	-

Table 1. *KACO inverter series that support all of the functions described*

Key		
V5.x	new Features	Features / Functions' / Password protection; Features / Functions' / Enhanced Island Detection /Up-/Download' / Documentation of a parameter set / Grid parameters / Overvoltage protection
x.yz	released	
-	in preparation	Single update Remote update of the inverter possible

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